NEW AUSTRALIAN MOLLUSKS.

BY HENRY A. PILSBRY.

The forms described below occurred in a recent sending received from Dr. J. C. Cox, consisting mainly of marine mollusks he had collected at Eden, on the coast of New South Wales, a catalogue of which will probably be published by him elsewhere. In the present scattered condition of the literature of Australian mollusks, only omniscience can always escape the danger of overlooking some description; but reasonable care is believed to have been taken in dealing with the following.

Genus TATEA Tenison-Woods.

The relationships of *Tatea* seem to require examination. In the Manuals of Fischer and Tryon it is placed under *Jeffreysia* as a subgenus; but it differs radically from this group in dentition and operculum, and is also unlike it in shell characters. The *Rissoina* group is that to which *Tatea* seems allied by its operculum; and *Eatoniella* Dall, with species in Kerguelen Island, South Georgia and New Zealand, would apparently be the most nearly allied genus, if judged by conchologic features only.

Eatoniella[1] has an ovate, one- or few-whorled operculum with the nucleus near the columellar margin, a process arising therefrom directed toward that margin. The shell has 4½–6 convex whorls, is thin, the peristome somewhat reflexed at the columellar margin, and neither contracted nor indistinctly varixed as it is in *Tatea*. The species are all quite small, the largest known being but 3 mm. long. The dentition as described and figured by Schako in the paper of Martens and Pfeffer cited above, has some peculiar features. The rachidian tooth is practically as in *Rissoa*, apparently with a basal denticle on each side situated low as in *Rissoa*, although Schako does not make this clear. The lateral is as usual in the group. *The inner uncinus has as few or fewer denticles than the lateral*, and they are quite large. According to Schako's figures and

[1] See E. A. Smith, Philos. Trans., Vol. 168, p. 174, and Martens and Pfeffer, Jahrb. Hamb. Wiss. Anstalten, III, p. 94, 1886.

the text on p. 94, there are three denticles on this tooth, but the description on p. 96 gives five denticles. The outer uncinus has seven denticles. The denticle formula of what Martens and Pfeffer identify as *Eatoniella kerguelenensis* is, therefore, $\frac{7}{1\text{–}1\ (?)}$, 5, 3 (?), 7.

In *Dardania* Hutton,[2] which, so far as shell, operculum and radula go, is identical with *Eatoniella*, the dentition as figured by Hutton agrees in essentials with that genus. Hutton's figure is rather diagrammatic. It shows no basal denticles, the formula being $\frac{5}{0\text{–}0}$, 6, 3, 5 (?). This seems to agree essentially with *Eatoniella*, especially in the important and unusual character of the inner marginal tooth, the cusp of which is remarkable for the small number and large size of its denticles. The omission of basal denticles may be an oversight.

The inclusion of *Dardania* in *Eatoniella* seems from the data at hand to be necessary.

Now, in *Tatea*, the radula (Pl. IX, fig. 8) is unequivocally Hydrobioid. Judging from it alone, if one were to ignore the shell and operculum, it would be pronounced a *Potamopyrgus*. It differs in very important particulars from that of *Eatoniella*. The rachidian tooth shows several well marked basal denticles *inserted well above the basal margin of the tooth*, as in the freshwater genera. The lateral is as usual above, and has the tongue-like process below, noticed in many non-marine forms. The inner uncinus has the scythe-like form usual in *Hydrobia* and its allies, with 15 to 20 minute denticles on the long cusp. The outer uncinus has still finer denticulation. It will be seen that both the median and the inner marginal teeth are quite different from the corresponding teeth of *Eatoniella*, and altogether like those of *Potamopyrgus* and its allies.

From these characters we would advocate the removal of *Tatea* from the subfamily *Rissoininæ*, and install it in the *Amnicolidæ* (*Hydrobiidæ* of Fischer), notwithstanding its aberrant operculum. The union of *Tatea* with *Eatoniella*, which some authors have accepted, is altogether inadmissable; and the genus, which is dedicated to one of the most able of Australian zoologists, will stand as one of the most isolated in its family.

The figure represents the teeth of *T. huonensis*; those of *T. paradisiaca* are very similar. I have not examined the radula of *T. rufilabris*.

[2] Trans. and Proc. N. Z. Institute, xiv, p. 147, pl. 1, f. K, 1–4, (1882)

Tatea paradisiaca n. sp. Pl. IX, figs. 10, 11.

Shell narrowly pyramidal, the lateral outlines of the spire slightly concave above, apex obtuse. Whorls about 7½; the nucleus minute, the first whorl globose and relatively large, following whorls but slightly convex, separated by linear sutures, the last whorl either bluntly angular or rounded at the periphery, swelling in a low varix behind the peristome, then contracting, rather abruptly falling or deflexed for a short distance in front. Surface shining, showing excessively faint, fine spiral striæ in certain lights. Color, rich reddish-chestnut, becoming a little paler on the spire, and with the peristome of a decidedly darker shade.

Aperture ovate, rounded above, vertical; peristome obtuse and thick, continuous. Umbilicus hardly perforated. Alt. 4·8, diam. 2·5 mm.; alt. of aperture 1·5 mm.

Eden, New South Wales, Australia, in a brackish swamp (Dr. J. C. Cox, 1897).

This species differs from *T. rufilabris* (A. Ad.[3]) and *T. huonensis* (Tenison-Woods[4]) in being much broader in proportion to its heighth, of a darker color, and with strongly developed lip varix. The appearance of margination below the sutures, produced by transparence, is more conspicuous in *rufilabris* and *huonensis* than in our new species, and both of the former have the spire more attenuated above.

The species of *Tatea* may be tabulated as follows:

a. Shell slender, the diameter less than one-half the height,
  b. Peristome very thick and heavy; a keel defining the base, *T. rufilabris* A. Ad. (pl. ix, fig. 7).
  b'. Peristome rather thin throughout; peripheral keel weak or wanting; no varix behind the lip, *T. huonensis* T.-W. (pl. ix, fig. 12).

a'. Shell stouter, the diameter over half the height; peristome thick; a low varix behind the lip, *T. paradisiaca* Pils. (pl. ix, figs. 10, 11).

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[3] *Diala rufilabris* A. Ad., Ann. and Mag., Nat. Hist. (3), x, p. 298, 1862. Type locality, Port Lincoln. See also Smith, P. Z. S., 1875, p. 538, where it is referred to *Hydrobia*, and Journ. Linn. Soc. Lond., XVI, p. 268, pl. 7, f. 19 (as *Tatea*).

[4] *Bythinia huonensis* Tenison-Woods, Proc. Roy. Soc. Tasmania for 1875, p. 77; also for 1878, p. 71, and 1879, p. 72 (*Tatea*). Type locality, Huon River, Tasmania. See also Petterd, Proc. Roy. Soc. Tasm. for 1888, p. 78, pl. 2, f. 1 (as *Tatea rufilabris*).

T. rufilabris and *T. huonensis* have been united by Mr. Smith, and the union has been accepted by Australian and Tasmanian writers. The differences mentioned above seem constant in the rather small series of each before me; so that I would suggest a renewed comparison of Australian and Tasmanian specimens by someone having abundant material, in order that Mr. Smith's decision may be confirmed or reversed. The series before me is hardly ample enough to justify an opinion adverse to that of so fair minded an investigator as my honored confrère of the British Museum, but is still sufficient to raise a doubt.

Genus **ADEORBIS** Wood.

Adeorbis sigaretinus n. sp. Pl. IX, figs. 4, 5, 6.

Shell much depressed, shaped somewhat like the flat *Sigaretus* species, upper surface slightly convex, base broadly and deeply umbilicated; thin, white. Whorls 4½, the first minute, brownish, elevated, the others convex, rapidly widening, the last very wide, rounded at the periphery and base, as well as on the umbilical margin. Sculpture, close and fine wrinkles of growth, somewhat irregular, and fine, crowded, thread-like spiral striæ. Aperture large, very oblique, subcircular, only slightly excised by the parietal margin; peristome thin and simple. Alt. 2, greater diam. 4·8, lesser 3·8 mm., or slightly larger, diam. 5·5 mm.

Rockhampton, Australia (Dr. J. C. Cox).

A. sigaretinus differs from *A. striatellus* from New Caledonia in the larger size, wider last whorl, open umbilicus without a bordering keel, and different ornamentation; Montrouzier's species being distinctly punctured along the striæ in the specimens before me, as stated in the original description. The absence of a constricting, delicate umbilical keel is a very obvious point of difference.

Genus **CORBULA** Bruguière.

Corbula Coxi n. sp. Pl. IX, figs. 1, 2, 3.

Shell solid, strong and quite inequivalve, inequilateral, very ventricose, the diameter nearly or quite equal to the height; in fully mature individuals, oblong, the beaks nearly central, anterior end rounded, posterior end narrower, very obliquely truncated, much narrowed below and projecting in a short truncate rostrum; basal margin moderately arcuate. Surface dull, whitish, with remnants of a thin yellowish cuticle at the ends. Right valve somewhat

larger, projecting beyond and closely overlapping the left along the whole basal margin. Both valves have the posterior area defined by a keel. Sculpture rather fine, irregular wrinkles parallel to growth lines, becoming coarser below, and obsolete toward the beaks, where numerous spaced radial carinulæ, linear and very delicate may be seen under the lens. Interior white, the right valve with a high, triangular, recurved tooth fitting into a corresponding deep process in the other valve.

Length 18·5, height 11, diam. 11 mm.

Length 17·5, height 11, diam. 9.3 mm.

Sydney Head (John Brazier), and Eden, Twofold Bay, New South Wales (Dr. J. C. Cox).

This species is probably the *C. nasuta* of Angas' lists of Australian mollusks, but it is not, in my opinion, the *C. nasuta* of Sowerby,[5] described from Xipixapi, west coast of Colombia. The latter is smaller, adults before me measuring 7·5 to 10 mm. long, and the beaks are somewhat different. In *C. nasuta*, as Reeve's figure shows, the larger valve projects above beyond the smaller, while in *C. Coxi* the two are nearly equal above. In *C. nasuta* the concentric ribs are more prominent on the anterior end than in *C. Coxi*. The posterior rostration is decidedly longer in *C. nasuta*. Sowerby's types measured: long 0·7, lat. 0·35, alt. 0·4 inch. These differences indicate specific distinction; the very widely separated habitats of the two forms also pointing in this direction.

EXPLANATION OF PLATE IX.

Figs. 1, 2, 3. *Corbula Coxi.* Lateral, ventral and posterior views.

Figs. 4, 5, 6. *Adeorbis sigaretinus.* Anterior, ventral and dorsal views of the shell.

Fig. 7. *Tatea rufilabris.* Front view of shell.

Fig. 8. *Tatea huonensis.* Dentition.

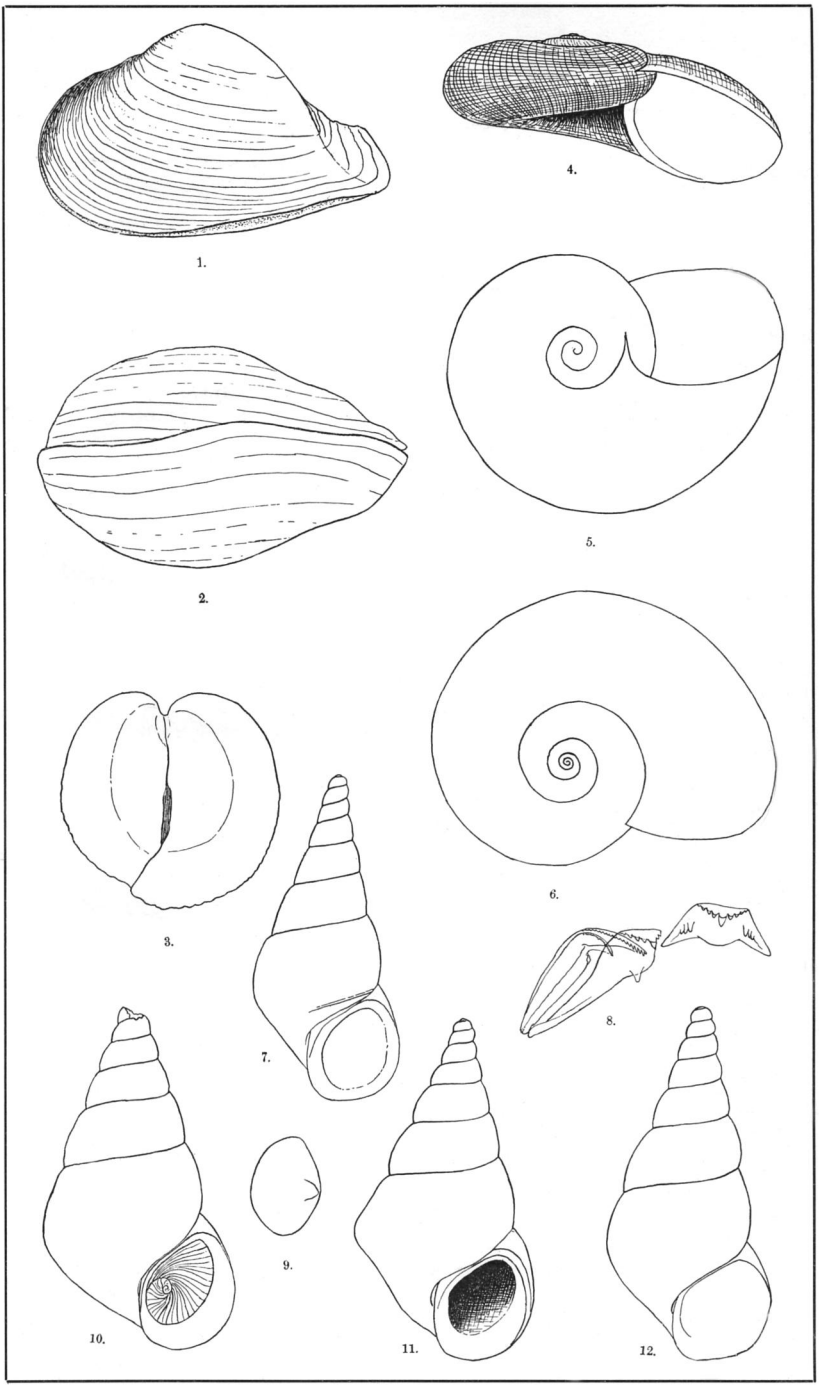
Fig. 9. *Tatea huonensis.* Operculum, from within.

Figs. 10. 11. *Tatea paradisiaca.* Front views of two specimens.

Fig. 12. *Tatea huonensis.* Front view of shell.

All figures variously enlarged, reproduced from camera lucida drawings.

[5] Proc. Zool. Soc. Lond., 1833, p. 35; Reeve, Conch. Icon., Vol. II, pl. 1, fig. 1.



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